Rules and Regulations for the Classification of Ships, July 2011

Notice No. 8

Effective Date of Latest Amendments:

See page 1

Issue date: April 2012

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RULES AND REGULATIONS FOR THE CLASSIFICATION OF SHIPS, *July 2011*

Notice No. 8

This Notice contains amendments within the following Sections of the *Rules and Regulations for the Classification of Ships, July 2011.* The amendments are effective on the dates shown:

Part	***Chapter***	***Section***	***Effective date***
1	2	2	Corrigendum
3	8	2	Corrigendum
3	10	3	Corrigendum
3	14	4, 5 & 9	Corrigenda
3	16	7 & 11	1 July 2012 & Corrigenda
4	1	9	Corrigendum
4	2	2 & 8	Corrigenda
4	7	1	Corrigendum
4	8	12	Corrigenda
4	9	1 & 11	Corrigenda
4	10	1	Corrigendum
6	1	1 & 2	Corrigenda
6	2	1, 8, 11, 13 & 16	Corrigenda
7	4	7	Corrigendum
8	1	3	Corrigendum

It will be noted that the amendments also include corrigenda, which are effective from the date of this Notice.

The *Rules and Regulations for the Classification of Ships, July 2011* are to be read in conjunction with this Notice No. 8. The status of the Rules is now:

Rules for Ships	Effective date:	July 2011
Notice No. 1	Effective date:	1 July 2011
Notice No. 2	Effective date:	1 January 2012 & Corrigendum
Notice No. 3	Effective date:	1 January 2012
Notice No. 4	Effective date:	1 January 2012
Notice No. 5	Effective date:	1 July 2012
Notice No. 6	Effective date:	1 July 2012
Notice No. 7	Effective date:	1 July 2012
Notice No. 8	Effective date:	1 July 2012 & Corrigenda

Part 1, Chapter 2

Classification Regulations

CORRIGENDUM

■ *Section 2*
Character of classification and class notations

2.7 Descriptive notes

(*Part only shown*)

2.7.3 Where LR's ShipRight procedures for the following have been applied on a voluntary basis, then a descriptive note will, at the Owner's request, be entered in column 6 of the *Register Book*, preceded by the word **ShipRight** (*see also ShipRight Procedures Overview,* Pt 3, Ch 16 and Pt 5, Ch 21):

~~**SEA(Hss-n)**~~ **SEA(HSS-n)**	Ship Event Analysis (Hull Surveillance Systems)

Part 3, Chapter 8

Superstructures, Deckhouses and Bulwarks

CORRIGENDUM

■ *Section 2*
Scantlings of erections other than forecastles

2.1 Thickness of bulkhead and side plating

2.1.1 The thickness, t, of plating of the fronts, sides and aft ends of all erections, other than the sides of superstructures where these are an extension of the side shell, is to be not less than:

$$t = 0{,}003s\sqrt{kh} \quad \text{mm}$$

but in no case is the thickness to be less than:

(a) for the lowest tier:

$$t = \left(5{,}0 + 0{,}01L_3\right)\sqrt{k} \quad \text{mm}$$

(b) for the upper tiers:

t = ~~$4{,}0 + 0{,}01L_3\sqrt{k}$ mm~~ but not less than 5,0 mm.

$$(4{,}0 + 0{,}01L_3)\sqrt{k} \quad \text{mm}$$

Part 3, Chapter 10

Welding and Structural Details

CORRIGENDA

■ *Section 3*
Secondary member end connections

3.3 Basis for calculation

3.3.2 In other cases the scantlings of the bracket are to be based on the modulus as follows:

(a) Bracket connecting stiffener to primary member: modulus of the stiffener.

(b) Bracket at the head of a main transverse frame where frame terminates:
modulus of the frame.~~(c) Brackets connecting lower deck beams or longitudinals to the main frame in the forward 0,15L:
modulus of the frame.~~

(c) Brackets connecting lower deck beams or longitudinals to the main frame in the forward 0,15L:
modulus of the frame.

(d) Elsewhere:
the lesser modulus of the members being connected by the bracket.

3.5 Arrangements and details

3.5.3 For arrangements where end brackets are not perpendicular to the adjacent plating the strength of the brackets, in ~~term~~ terms of lateral stability, may need to be specially considered.

Part 3, Chapter 14

Cargo Securing Arrangements

CORRIGENDA

■ *Section 4*
Ship structure

4.2 Strength

4.1.2 The fitting of a breakwater may be required, *see* ~~8.1.9~~ 8.1.8.

■ *Section 5*
Container securing arrangements for stowage on exposed decks without cell guides

5.1 General

5.1.5 In the region forward of 0,25L_{pp} abaft the fore perpendicular additional securing devices may be required, *see* ~~8.1.10~~ 8.1.9.

■ *Section 9*
Strength of container securing arrangements

9.1 Resultant applied forces

9.2.5 For exposed stacks in the forward 0,25L_{pp}, *see* ~~8.1.10~~ 8.1.9.

Part 3, Chapter 16

ShipRight Procedures for the Design, Construction and Lifetime Care of Ships

CORRIGENDUM

■ *Section 7*

Protective coating in water ballast tanks and double-side skin spaces

7.1 Protective coating systems in dedicated sea water ballast tanks and double-side skin spaces – ShipRight Notations ACS(B) or ACS(B,D)

7.1.2 **ShipRight ACS(B)** or **ShipRight ACS(B,D)** will be entered in Column 4 of the Register Book to indicate that the ship's sea water ballast tanks ~~or ship's sea water ballast tanks~~ and double-side skin spaces of bulk carriers are coated with approved coating systems according to IMO Resolution MSC.215(82), Performance Standards for Protective Coatings.

Effective date 1 July 2012

■ *Section 10*

Inventory of hazardous materials

10.1 Inventory of hazardous materials – Descriptive Note IHM

10.1.1 Compliance with this procedure is optional. A ship meeting the requirements of this procedure will be eligible for a ShipRight **IHM** Descriptive Note, which will be recorded in column 6 of the *Register Book*, except as indicated in 10.1.2.

10.1.2 If a ship has been assigned the **ECO** notation, then it will not be eligible for an **IHM** Descriptive Note. Instead, **IHM** will be referenced in the **ECO** notation, i.e., **ECO(IHM)**.

Part 4, Chapter 1

General Cargo Ships

CORRIGENDUM

■ *Section 9*

Bulkheads

9.2 Watertight and deep tank bulkheads

Table 1.9.1 Watertight and deep tank bulkhead scantlings *(Part only shown)*

Item and requirement	Watertight bulkheads	Deep tank bulkheads
(1) Plating thickness for plane, symmetrically corrugated and double plate bulkheads	$t = 0{,}004 s\, f \sqrt{h_4\, k}$ mm but not less than 5,5 mm	$t = 0{,}004 s\, f \sqrt{\dfrac{\rho h_4 k}{1{,}025}} + 2{,}5$ mm but not less than 6,5 mm, where $L < 90$ m nor less than 7,5 mm, where $L \geq 90$ m
	In the case of symmetrical corrugations, *s* is to be taken as *b* or *c* in Fig. 3.3.1 in Pt 3, Ch 3, whichever is the greater	
(2) Modulus of rolled and built stiffeners, swedges, double plate bulkheads and symmetrical corrugations	$Z = \dfrac{s\, k\, h_4\, l_e^2}{71\gamma\, (\omega_1 + \omega_2 + 2)}$ cm^3	$Z = \dfrac{\rho\, s\, k\, h_4\, l_e^2}{22\gamma\, \cancel{1{,}025}\, (\omega_1 + \omega_2 + 2)}$ cm^3
	In the case of symmetrical corrugations, *s* is to be taken as *p*, *see also* Note 2	

Part 4, Chapter 2

Ferries, Roll on-Roll off Ships and Passenger Ships

CORRIGENDA

Section 2
Longitudinal strength

2.5 Design wave shear force

2.5.1 The design vertical wave shear force, Q_w, at any position along the ship is given by:

$Q_w = 3f_1 K_f M_{wo}/L$ kN (tonne-f)

where

K_f is to be taken as follows, *see also* Fig. 2.2.2:

(a) Positive shear force:

$K_f =$ 0 at aft end of *L*
= +0,836f_{fH} between 0,2*L* and 0,3*L* from aft
= ~~+0,65f_{fH}~~ +0,70f_{fH} between 0,4*L* and 0,5*L* from aft~~, but not to be less than 0,70~~
= –0,65f_{fS} between 0,5*L* and 0,6*L* from aft
= –0,91f_{fS} between 0,7*L* and 0,85*L* from aft
= 0 at forward end of *L*

(b) Negative shear force:

$K_f =$ 0 at aft end of *L*
= +0,836f_{fS} between 0,15*L* and 0,3*L* from aft
= +0,65f_{fS} between 0,4*L* and 0,5*L* from aft
= ~~–0,65f_{fH}~~ –0,70f_{fH} between 0,5*L* and 0,6*L* from aft~~, but not to be greater than 0,70~~
= –0,91f_{fH} between 0,7*L* and 0,85*L* from aft
= 0 at forward end of *L*

Intermediate values to be determined by linear interpolation.
f_1, M_{wo}, f_{fS} and f_{fH} are defined in 2.4.1.

2.6 Buckling strength

(*Part only shown*)

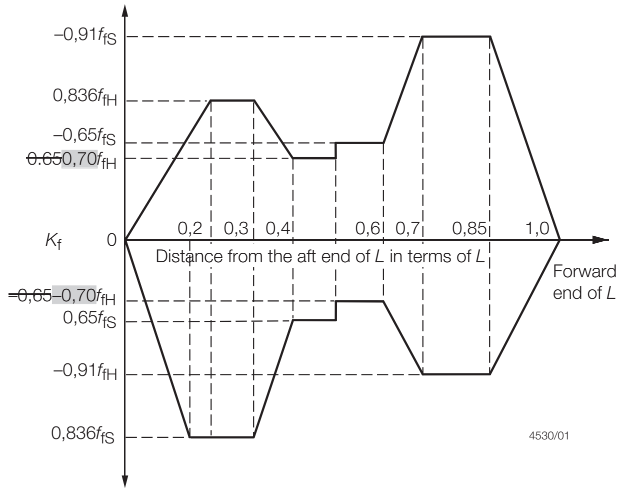

Fig. 2.2.2 Shear force factor K_f

Section 8
Bow doors and inner doors

8.7 Operating and Maintenance Manual

8.7.1 An Operating and Maintenance Manual for the bow doors and inner doors is to be provided on board and is to contain the following information:

(a) main particulars and design drawings,
- special safety precautions;
- details of vessel~~, class and statutory certificates~~;
- equipment and design loading for ramps;
- key plan of equipment for doors and ramps;
- manufacturers' recommended testing for equipment; and
- a description of the ~~following~~ equipment for:
  bow doors;
  inner bow doors;
  bow ramp/doors;
  side doors;
  stern doors;
  central power pack;
  bridge panel;
  ramps leading down from the main deck
  engine control room panel.

Part 4, Chapter 7

Bulk Carriers

CORRIGENDUM

■ *Section 1*
General

1.4 Class notation for CSR bulk carriers

1.4.1 In general, CSR bulk carriers less than 150 m in length are to comply with the requirements of 1.6, Pt 3, Ch 2 and the *IACS Common Structural Rules for Bulk Carriers* (CSR) and will be eligible for one of the following mandatory class notations:

(a) **100A1 bulk carrier, CSR, {any holds may be empty}, ESP.** This class notation is normally assigned to a ship designed to carry dry bulk cargoes of cargo density 1,0 tonne/m^3 and above, with an approved arrangement of loaded holds such that any hold may be empty at the full loaded draught.

(b) **100A1 bulk carrier, CSR, {hold~~s *a*, *b*~~, nos. 1, 2 ... may be empty}, ESP.** This class notation is normally assigned to a ship designed to carry dry bulk cargoes of cargo density 1,0 tonne/m^3 and above with specified holds empty at maximum draught.

(c) **100A1 bulk carrier, CSR, ESP.** This class notation will be assigned to a ship designed to carry dry bulk cargoes of cargo density less than 1,0 tonne/m^3.

1.4.2 In general, CSR bulk carriers equal to or greater than 150 m in length are to comply with the requirements of 1.6, Pt 3 Ch 2 and the *IACS Common Structural Rules for Bulk Carriers* (CSR) and will be eligible for one of the following mandatory class notations:

(a) **100A1 bulk carrier, CSR, BC-A, {hold~~s *a*, *b*~~, nos. 1, 2 … may be empty}, GRAB [X] ESP.** This class will be assigned for bulk carriers designed to carry dry bulk cargoes of cargo density 1,0 tonne/m^3 and above with specified holds empty at maximum draught.

(b) **100A1 bulk carrier, CSR, BC-B, GRAB [X], ESP.** This class will be assigned for bulk carriers designed to carry dry bulk cargoes of cargo density 1,0 tonne/m^3 and above with all cargo holds loaded.

(c) **100A1 bulk carrier, CSR, BC-C, ESP**. This class will be assigned for bulk carriers designed to carry dry bulk cargoes of cargo density less than 1,0 tonne/m^3 with all cargo holds loaded.

1.4.3 The following additional notations and annotations are to be provided giving further detailed description of limitations to be observed during operation as a consequence of the design loading condition applied during the design.

- **Notations:**
  (maximum cargo density (in tonnes/m^3)) For notations **BC-A** and **BC-B** if the maximum cargo density is less than 3,0 tonnes/m^3;
  (no MP) For all notations when the vessel has not been designed for loading and unloading in multiple ports in accordance with the conditions specified in *IACS Common Structural Rules for Bulk Carriers* (CSR) Ch 4,7.3.3;
  GRAB [X] where the net thickness of inner bottom, lower strake of hopper tank sloping plate and transverse lower stool plating comply with *IACS Common Structural Rules for Bulk Carriers* (CSR) Ch 12,1 for **BC-A** and **BC-B**, *see also* CSR Ch 1,1;
- Annotations:
  (allowed combination of specified empty holds). For notation **BC-A**.

1.4.4 The 'Construction Monitoring' (CM) procedures detailed in the *ShipRight Procedures Manual*, published by LR, are mandatory for bulk carriers greater than 190 m in length.

1.4.5 Optional notations indicating compliance with specific requirements of Sections 3 to 14 on a voluntary basis may also be assigned.

1.5 Class notation for non-CSR bulk carriers

1.5.1 In general, non-CSR Bulk Carriers are to comply with the requirements of 1.5.2 to 1.5.7 and will be eligible for one of the following mandatory class notations:

(a) **100A1 bulk carrier, ESP.**

(b) **100A1 bulk carrier, strengthened for heavy cargoes, ESP.** This class notation will be assigned to a ship when the double bottom structure has been specially strengthened in accordance with the requirements of Table 7.8.1.

(c) **100A1 bulk carrier, strengthened for heavy cargoes, {hold~~s a, b~~, nos. 1, 2 ... may be empty}, ESP**. This class notation is normally assigned to a ship which has been specially strengthened for heavy cargoes (*see* (b), so as to enable the ship to be fully loaded with an approved arrangement of empty holds, *see also* 1.3.5 and 1.4.3.

(d) **100A1 bulk carrier, strengthened for heavy cargoes, {any holds may be empty}, ESP.** This class notation is normally assigned to a ship which has been specially strengthened for heavy and ore cargoes, with an approved arrangement of loaded holds such that any hold may be empty at the full loaded draught.

1.5.2 Plans and information are to be submitted in accordance with 1.7.

1.5.3 Requirements are also given for special strengthening for heavy cargoes, *see* 8.2.

1.5.4 The scantlings and arrangements of the cargo region are to be as specified in this Chapter in Sections 2 to 14. The requirements are intended to cover the midship region, but also apply, with suitable modification, to the taper regions forward and aft in way of cargo spaces.

Part 4, Chapter 8

Container Ships

CORRIGENDUM

■ *Section 12*
Strengthening for wave impact loads

12.1 General

(*Part only shown*)

12.1.3 To satisfy 12.1.2, the scantlings of web frames supporting side longitudinals or side stringers supporting transverse frames are to comply with the following:

(b) Web area not to be less than:

$A = 0{,}20 f_{\text{rpc}}\, \gamma_A\, k\, h_s\, q\, v\, l_e \quad \text{cm}^2$

where

h_s = wave impact head, in metres, as defined in Ch 2,4.3.2.

and

$$f_{\text{rpc}} = \frac{P}{3{,}05V^3} \cancel{\left(\frac{P}{2{,}27V^3}\right)} = \frac{H}{2{,}27V^3}$$

P is the maximum propulsion shaft power in kW~~(HP)~~ for which the machinery is classed, *see* Pt 5, Ch 1,3

H is the maximum propulsion shaft power in HP for which the machinery is classed, *see* Pt 5, Ch 1,3

V is the speed, in knots as defined in Pt 3, Ch 1,6

γ_A and γ_Z are strength factors dependent on the load position:

for $q < 1$:$\gamma_A = q^3 - 2q^2 + 2$ and $\gamma_Z = 3q^3 - 8q^2 + 6q$

for $q = 1$:$\gamma_A = 1 \gamma_Z = 1$

$q = \dfrac{u}{l_e}$ but ≤ 1

Part 4, Chapter 9

Double Hull Oil Tankers

CORRIGENDA

■ *Section 1*
General

1.3 Class notation and applicable Rules for CSR Double Hull Oil Tankers

1.3.2 Class notations applicable to CSR double hull oil tankers are defined as follows:

- **CSR**
  Identifies the double hull oil tanker as being compliant with the *IACS Common Structural Rules for Double Hull Oil Tankers*
- **ESP**
  Identifies the double hull oil tanker as being subject to an Enhanced Survey Programme as detailed in Pt 1, Ch 3,3 and ~~Ch 3,6~~ Ch 3,7, *see also* Pt 1, Ch 2,2.3.12.

1.4 Class notation and applicable Rules for non-CSR Double Hull Oil Tankers

1.4.2 The notation **ESP** serves to identify the ship as being subject to an Enhanced Survey Programme as detailed in Pt 1, Ch 3,3 and ~~Ch 3,6~~ Ch 3,7, *see also* Pt 1, Ch 2,2.3.12.

■ *Section 11*
Ships for alternate carriage of oil cargo and dry bulk cargo

11.2 Class notations

11.2.2 The notation **ESP** serves to identify the ship as being subject to an Enhanced Survey Programme as detailed in Pt 1, Ch 3,3 and ~~Ch 3,6~~ Ch 3,6 and Ch 3,7, *see also* Pt 1, Ch 2,2.3.12.

Part 4, Chapter 10

Single Hull Oil Tankers

CORRIGENDUM

Section 1

General

1.2 Class notations

1.2.2 The Notation **ESP** serves to identify the ships as being subject to an Enhanced Survey Programme as detailed in Pt 1, Ch 3,3 and ~~Ch 3,6~~ Ch 3,7, *see also* Pt 1, Ch 2,2.

Part 6, Chapter 1

Control Engineering Systems

CORRIGENDA

Section 1

General requirements

1.3 Control, alarm and safety equipment

1.3.3 Where equipment requires a controlled environment, an alternative means is to be provided to maintain the required environment in the event of a failure of the normal air conditioning system, *see also* Table 1.3.~~12~~11.

Section 2

Essential features for control, alarm and safety systems

2.10 Programmable electronic systems – General requirements

2.10.6 Emergency stops are to be hard-wired and independent of any programmable electronic equipment. Alternatively, the system providing emergency stop functions is to comply with the requirements of 2.13.2 and/or ~~2.13.9~~ 2.13.8.

Part 6, Chapter 2

Electrical Engineering

CORRIGENDA

Section 1

General requirements

1.2 Plans

1.2.14 For high voltage rotating machines, type test reports for stator insulation systems, *see* ~~8.1.10~~ 8.1.13.

1.18 Programmable electronic systems

1.18.2 Where ~~1.17.1~~ 1.18.1 applies, proposed modifications to software and acceptance testing and trials are to be in accordance with Ch 1,1.4 and Section 7 as applicable.

Section 8

Rotating machines

8.1 General requirements

8.1.14 For testing required by ~~8.1.10~~ 8.1.13 on coils relating to global vacuum pressure impregnated systems, test samples representing the unimpregnated state and the impregnated state of the final winding and stator core are to be used as appropriate for testing.

8.8 Survey and testing

8.8.5 For high voltage machines, a description of rotor and stator insulation system application procedures (taping, impregnation, pressing and curing, etc.) with application process records, including details of checks and tests conducted to verify successful application, is to be made available to the LR Surveyor during manufacture, *see also* ~~8.1.10~~ 8.1.13.

Section 11

Batteries

11.5 Ventilation

11.5.11 The ventilation rate for compartments containing valve-regulated sealed batteries may be reduced to 25 per cent of that given in ~~11.5.8~~ 11.5.10.

Section 13

Electrical equipment for use in explosive gas atmospheres or in the presence of combustible dusts

13.5 Hazardous zones and spaces

13.5.8 The following zones or spaces are regarded as hazardous, **zone 2**:

(a) ventilated spaces separated by a single bulkhead or deck from a **zone 0** space;

(b) zones on open deck extending 1,5 m beyond those defined by 13.5.7(d), ~~(e), (f), (g) or (h)~~ (f), (g), (h) or (j);

(c) zones within a 1,5 m radius of ventilation inlets serving spaces defined by 13.5.7(a) or (c); and

(d) enclosed or semi-enclosed spaces with direct opening into a **zone 2** hazardous location.

Section 16

Fire safety systems

16.3 Fixed water-based local application fire-fighting systems

16.3.3 Failure of any power supply is to operate an audible and visual alarm. *See also* 1.13 and ~~1.14~~ 1.15.

Part 7, Chapter 4

Dynamic Positioning Systems

CORRIGENDUM

Section 7

Testing

7.1 General

7.1.5 Records and data regarding the performance capability of the dynamic positioning system are to be maintained on board the ship and are to be made available at the time of the Annual Survey, *see* Pt 1, ~~Ch 3,2.2.17~~ Ch 3,2.2.23.

Part 8, Chapter 1

Control Engineering Systems

■ *Section 3*
Air environment

3.1 Air temperature

3.1.1 For ships intended to operate in cold regions, the temperature on exposed surfaces is to be considered. *See The Provisional Rules for the Winterisation of Ships*.

3.1.2 The average external design air temperature is to be taken as the lowest mean daily average air temperature in the area of operation:
where
Mean = statistical mean over a minimum of 20 years
Average = average during one day and one night
Lowest = lowest during the year
MDHT = Mean Daily High Temperature
MDAT = Mean Daily Average Temperature
MDLT = Mean Daily Low Temperature
Fig. 1.3.1 shows the definition graphically.

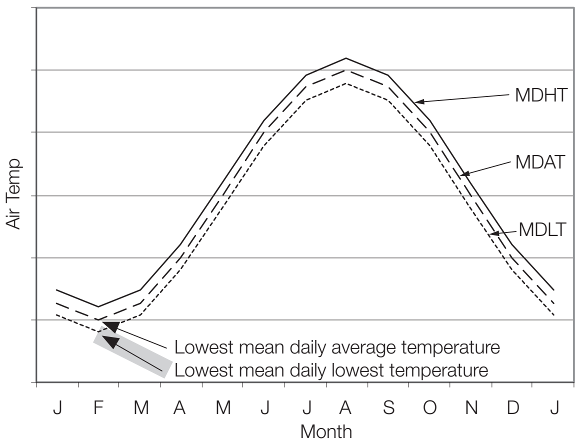

Fig. 1.3.1 Air temperature

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